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ABSTRACT

This learning module, which is part of a staff development program for health occupations clinical instructors, presents techniques for assessing students' learning styles. It includes learning activities dealing with theories pertaining to learning styles; facts and principles of learning styles; the elements of learning style; and the use of instruments, tests, and observation to assess learning style. Besides the learning activities, the module also includes directions for completing the module, an introduction, module objectives, pre- and posttests and answer keys, definitions of key terms used in the module, a module summary, and references. (MN)

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Health Occupations Clinical Teacher Education Series for Secondary and Post-Secondary Educators

Illinois State Board of Education

Adult, Vocational and Technical Education

Teaching Skills in the Clinical Setting: Assessing Students' Learning Styles

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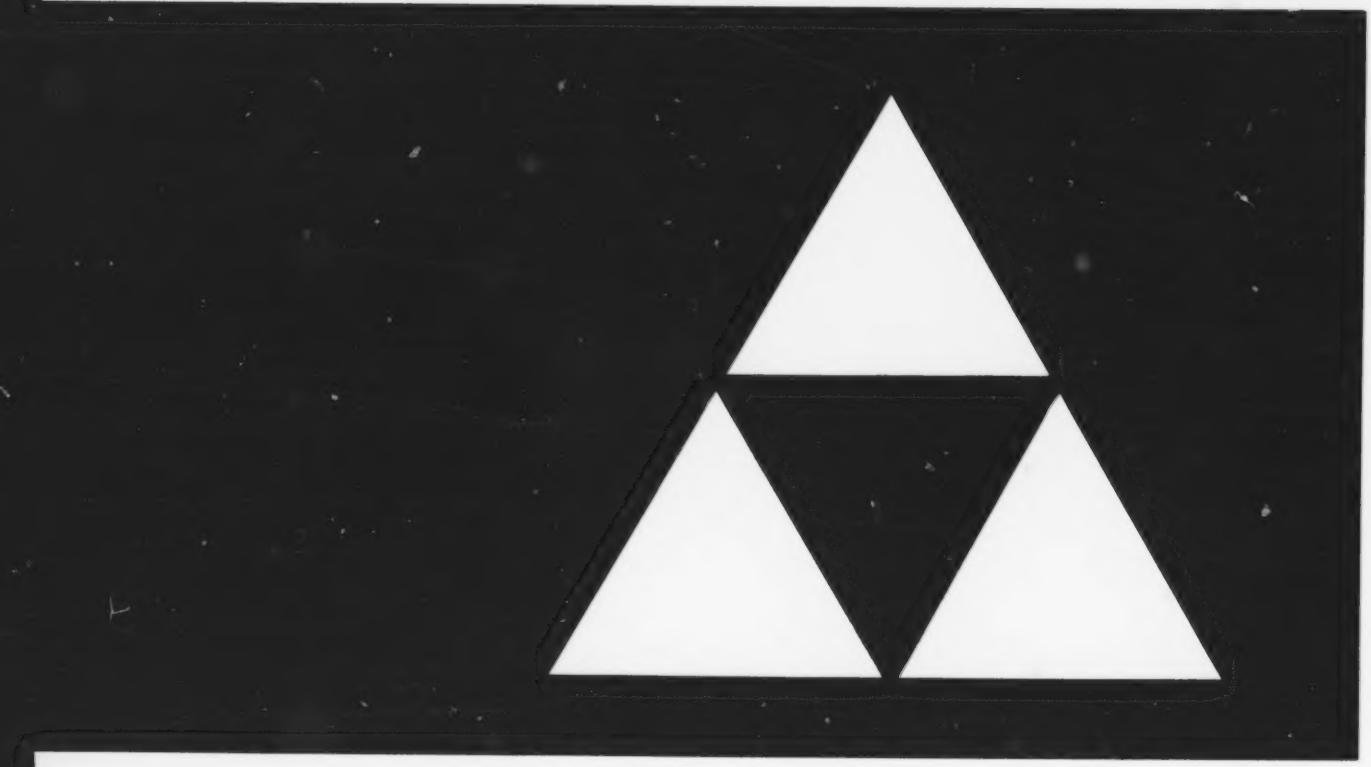

HEALTH OCCUPATIONS CLINICAL TEACHER EDUCATION SERIES FOR SECONDARY AND POST-SECONDARY EDUCATORS

Teaching Skills
in the Clinical Setting
Assessing Students'
Learning Styles

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Development Section

TEACHING SKILLS IN THE CLINICAL SETTING:

ASSESSING STUDENTS' LEARNING STYLES

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TEACHING SKILLS IN THE CLINICAL SETTING:

ASSESSING STUDENTS' LEARNING STYLES

DIRECTIONS FOR COMPLETING THE MODULE

This module includes the following parts:

1) Introduction and Objectives

2) Pre-Test and Answer Key

3) Learning Activities 1 through 5, and Self-Check Exercises

4) Post-Test and Answer Key

Following review of the Introduction, take the Pre-Test and use the key to determine your score. The Pre-Test is intended to help you identify the Learning Activities on which you should place primary focus.

Then, proceed to complete the Learning Activities. Even if you have had experience with assessing learning styles, completion of the Learning Activities will provide a good review and practice. It is important that you complete the Self-Check following each activity.

The final part of the module, the Post-Test, is intended to measure your achievement of the objectives of the module. Complete the test without using the key or the module itself. You may then score your test. If you had more than 3 incorrect answers, you should review the module.

Regardless of your score, remember that assessing students' learning styles is an essential part of the educational process. As a clinical educator, you must know the individual learning style of each of your students so you can teach them more effectively.

Go on to the Introduction.

INTRODUCTION

Each student has his/her own individual ways of learning material or procedures. These "ways of learning" are referred to as learning styles. Just as there are many different personality types within a given group of students, there are also many different learning styles within the group. It is important to know each of your students' learning styles before you attempt to effectively teach them.

Just as there are numerous learning styles, there are many teaching styles. Learning styles and teaching styles are very closely related. Students learn best when the teacher's teaching styles match their learning styles (Dunn & Dunn, 1979). Therefore, as a health occupations instructor, you must recognize each student's learning style before attempting to instruct your students. This "recognition" is facilitated through the process of learning style assessment.

The purpose of this module is to provide you with the knowledge and skills necessary to accurately assess students' learning styles. Following achievement of the objectives stated in the module, you will possess the capabilities necessary to be able to assess your students' learning styles through the use of assessment instruments and observation techniques.

Proceed to the Objectives.

OBJECTIVES OF THE MODULE

Terminal Objective: Upon completion of this module, assess students' learning styles.

Enabling Objectives:

1. After consideration of the different theories for assessing learning styles, differentiate between the assessment of learning style preferences and learning style strengths.

2. Given a list of the facts and principles of learning styles, explain the implications of these facts and principles for clinical education.

3. Given a list of the Dunns' learning elements, explain each of them as they apply to the clinical setting.

4. Given a completed instrument or test for assessing learning styles, assess the learning style using the Learning Style Checklist as a guide.

5. Given a case study describing the observations made of a student's learning style, assess the student's learning style using the Learning Style Checklist as a guide.

Go on to the Pre-Test.

PRE-TEST

Complete this test prior to beginning the Learning Activities. Utilize the key to score your own test. Circle T (true) or F (false) for each of the following statements.

T or F 1) All students learn in the same way.

T or F 2) One definition of learning style is the manner in which different elements from basic stimuli affect a person's ability to absorb and retain information.

T or F 3) Learning style preferences are the same as learning style strengths.

T or F 4) A student's learning style is consistent across subjects.

T or F 5) Both learning style modality strengths and preferences change with age.

T or F 6) A student's learning style cannot be changed.

T or F 7) Educators tend to teach in accordance with their own learning style.

T or F 8) Analytic learners process information in a step-by-step fashion.

T or F 9) Learners can only perceive learning material through their visual and auditory senses.

T or F 10) Students' learning styles and teachers' teaching styles should always be matched.

Check your answers with the following key.

PRE-TEST ANSWER KEY

1) F

2) T

3) F

4) T

5) T

6) F

7) T

8) T

9) F

10) F

The score you received should indicate how much you know or do not know about learning style. Even if you scored 100%, completion of the Learning Activities will help you improve your ability to assess learning style for your students. It is advised that you complete the entire module.

Go ahead to read the Definition of Terms, then start with Learning Activity #1.

DEFINITION OF TERMS USED IN THIS MODULE

Affect (affective) - an emotion, feeling, or mood as a factor in behavior.

Analytic - tending to separate or break up any whole into its parts so as to find out their nature, proportion, function, relationship, etc.

Assessment - the process whereby one person attempts to find out about the knowledge, attitude, or skills possessed by another. This may involve him/her in merely observing the student as he/she sets about normal learning activities; or he/she may need to create special assessment activities (e.g., quizzes, examinations, oral tests, etc.).

Auditory (modality) Learning - any learning that takes place through sensory impressions gathered through the ears.

Cognitive Style - an individual's characteristic and consistent manner of processing and organizing what he/she sees and thinks about.

Element - a component, feature, or principle of something; basic part.

Global - tending to relate to something as a whole.

Hemispheric Preference (cognitive dominance) - tending to use one side of the brain over the other for learning and working.

Impulsive - acting or given to acting on impulse.

Instruments (of diagnosis) - standardized procedures for the measurement of abilities, achievements, interests, personality traits and learning styles.

Kinesthetic (modality) Learning - any learning that takes place through the sensation of movement, weight, resistance, muscle tension and bodily position.

Learning Style - a student's habitual manner of problem-solving or thinking or learning. The student may not be conscious of his/her style, and may adopt different styles for different tasks or circumstances.

Learning Style Preference - the way in which a student likes to learn.

Learning Style Strength - the way in which a student learns best.

Manipulate - to manage or control artfully.

Mediate (mediator) - to be the medium for bringing about (a result), conveying (an object), communicating (information), etc.

Mode (modality) - method or form; a manner or way of acting, doing or being.

Projective Tests - psychological tests devised to measure global aspects of personality and personality dynamics.

Reflective - to think seriously; contemplate; ponder.

Semi-Projective Test - partly a projective test (see projective tests).

Stimulus - any action or agent that causes or changes an activity in an organism, organ, or part.

Strategies - term used by BRUNER and others for differing techniques or styles that different people use in thinking, learning and remembering.

Tactile (modality) Learning - any learning that takes place through sensory impressions gathered through touch.

Task - a unit of work activity which constitutes logical and necessary steps in performance of a duty.

Teaching Style - usually refers to the ways in which teachers differ in the kinds of relationships they establish with their pupils (e.g., formal or informal) and the kinds of social climates they establish (e.g., authoritarian or democratic).

Visual (modality) Learning - any learning that takes place through sensory impressions gathered through the eyes.

LEARNING ACTIVITY #1

THE THEORIES PERTAINING TO LEARNING STYLES

-or-

"WHAT IS A LEARNING STYLE?"

Enabling Objective 1: After consideration of the different theories for assessing learning styles, differentiate between the assessment of learning style preferences and learning style strengths.

Are you a person who is able to concentrate while listening to the radio? Do you work better in the morning, mid-morning, or at night? Are you self-motivated to work or do you need someone to give you a "push"? In answering these questions, you are probing your own characteristics for learning, or your "learning styles." Learning style theory has been developed under the premise that no two people learn exactly alike. The term, "learning styles," has been defined in several different ways over the past few years. Consequently many different theories have been developed for the assessment of learning styles. (Dunn & others, 1981) One theorist, James Keefe, Director of Research for the National Association of Secondary School Principals (NASSP), states, "Learning styles are cognitive, affective, and physiological traits that characterize how learners typically learn best." (Chiarelott & Davidman, 1983) This definition gives a basic view of what the term "learning styles" means. Other theorists have expanded on this meaning of learning styles by putting each learning style characteristic into separate categories or subheadings. This style categorization has been done by considering either the students' preferences (how they like to learn) or strengths (how they learn best). Often the students' preferences are the same as their strengths, but this may not always be the case. (Barbe & Milone, 1981)

Your students' preferences can be assessed through the use of a questionnaire or direct interview, by asking each student how they like to study or work. Rita and Kenneth Dunn have developed an instrument to aid in the assessment of students' learning style preferences. They believe a "learning style is the manner in which at least 18 different elements from basic stimuli affect a person's ability to absorb and retain information." (Chiarelott & Davidman, 1983) The Dunns have developed their self-assessment Learning Styles Inventory (LSI) around the elements they have discovered to be important in learning. (A detailed description of the Dunns' theory will be forthcoming in this module.) The questions within their inventory specifically ask students how they like to work, rather than how well they work, under different stimuli. Hence, their inventory generally measures preferences rather than strengths.

Your students' strengths can be determined through the use of observations or semi-projective tests by perceiving how well students perform under different stimuli. Another learning style theorist, David E. Hunt, believes a "learning style describes a student in terms of those educational conditions under which he is most likely to learn." (Davidman, 1981) Hunt uses the Teacher Assessment

of Student Learning Styles, which is a process of observing the students' reactions to systematic teacher-introduced changes in structure. (Dunn & others, 1980) The Paragraph Completion Method (PCM), which is also used by Hunt, is a semi-projective method of assessing students' strengths rather than preferences. They do not ask direct questions on likes and dislikes about specific stimuli; rather, they observe and record the strengths and weaknesses of a student's performance under specific learning stimuli.

Proceed to the Self-Check for Learning Activity #1.

SELF-CHECK FOR LEARNING ACTIVITY #1

Directions: Give a short answer for each of the following questions.

1. What is the premise upon which the Learning Style theory has been developed?

2. Suppose you have a student who likes to work in the early morning hours best. Is this behavior exhibiting a learning style preference or a learning style strength?

3. Which of the Learning Style theorists mentioned (the Dunns or Hunt) utilize a self-assessment instrument for determining learning style?

Check your answers with the Answer Key!

SELF-CHECK ANSWER KEY

1. No two people learn exactly alike.

2. Learning style preference - It is something this student likes to do. It is not necessarily the conditions under which the student learns best.

3. Dunns - They have developed the Learning Style Inventory, which predominantly measures learning style preferences.

If you feel that you know the difference between learning style preferences and learning style strengths, move on to Learning Activity #2. If not, review this activity again.

LEARNING ACTIVITY #2

THE FACTS AND PRINCIPLES OF LEARNING STYLE

Enabling Objective 2: Given a list of the facts and principles of learning styles, explain the implications of these facts and principles for clinical education.

It has been reported in the U.S. News and World Report that certain teachers who have used a learning style approach in their teaching have indicated that the approach has improved academic achievement and attitudes toward school. (Cavanough, 1981) Of course, the learning style approach must be used correctly for successful results to occur. One principle of the learning style approach is that if students' learning styles are matched with teachers' teaching styles, the students will develop a more positive attitude toward the subject. (Dunn, 1980).

In the clinical setting, your students' learning styles can be assessed, so that you can use the teaching style that suits each student best. For example, if one of your students learns best by looking at diagrams, you should make use of diagrams in your teaching. This will help the student gain a positive attitude toward the material being presented.

Learning style modality, the perceptual mode in which a student may learn (visual, auditory and tactile-kinesthetic), has been studied at respectively greater lengths than other aspects of learning style. As with the general learning style, each student may possess a perceptual modality strength and a completely different perceptual modality preference. It has been noted that learning style modality strengths change with age (Barbe, 1981), and also that learning style modality preferences change according to age (Price, 1983). In fact, "Dunn, Dunn and Price have found that the younger the students, the greater preference for learning through their tactile (touch) and kinesthetic (movement) senses, while older students prefer learning through auditory and visual senses." (Price, 1983) Therefore, you must keep the age of students in mind when assessing their learning styles. You must also conduct the learning style assessment over and over as the student grows older. A suggested time interval for reassessment might be every 2 to 3 years.

Other studies on learning style modalities reveal some interesting findings on sex and race. "Race and modality strengths were (found to be) independent" (Barbe, 1981) in one such study. In other words, the researchers discovered that the race of the student did not influence or dictate the learning style modality strengths of the student. However, one research study found "modality characteristics of boys and girls were comparable." (Barbe, 1981) These researchers believe that sex is an influence on the learning style modality of students. Consequently, you may consider the sex of your students when assessing their learning style modalities. But, please bear in mind that these studies are isolated cases. These findings would need further research to be considered conclusive.

Why are these findings important to you as a clinical educator? How can the assessment of learning styles help you teach your students? Let's take a look at the practical use of the learning style approach in clinical education to answer these questions.

The implications for the assessment of learning styles are varied, but each is equally important. One important implication for assessing learning styles is that clinical educators must employ many different teaching styles in order to respond to the diversity of learning styles among their students. (Dunn, 1980) Furthermore, "once teachers gain an appreciation of the variety of learning styles, they can respect learning style differences and adapt them to their teaching styles for different situations." (Cornett, 1983) But, it would not be realistic or desirable for you to "match" your teaching styles with the learning styles of all of the students all of the time. (Cornett, 1983) It would be more practical to be flexible with your teaching styles, so that your teaching styles could reach a great variety of students' learning styles most of the time. It would be impossible to reach all students all of the time. Also, it would be more desirable to encourage students to be more flexible with their learning styles, because it has been proven that ". . . a wide range of experiences is critical for optimum brain growth and development." (Cornett, 1983) In other words, the more flexible the students are with their learning styles, the more they will grow and develop academically.

How can this learning style flexibility come about? Since "learning style is not permanently fixed, preferences may be changed by motivation and interest." (Ostmoe, 1984) You can encourage flexibility of learning style by creating an interest in adapting another type of learning style for solving problems or performing tasks. Yet, when your students attempt a task or problem that is not "in tune" with their learning style, you must be present to mediate and encourage the new behavior. (Cornett, 1983) For instance, one of your students may learn best in the early morning hours and may be unable to function at an acceptable level in the afternoon. This student should be encouraged to bring his/her functioning level "up to par," so he/she can work effectively throughout the entire day. Your job would be first, to identify the student's learning style (an early morning learner), and second, to encourage a flexibility of learning styles (late morning and afternoon learning). You may encourage this flexibility by giving the student enjoyable tasks during the late morning or afternoon hours. You should continue to give the student increasingly difficult tasks during late morning or early afternoon hours to help him/her to be more flexible. No matter what technique you choose, it is most important to become a "mediator" throughout the process of encouraging flexibility. This requires you to constantly monitor your students and to provide positive feedback on their progress.

One interesting finding about the nature of learning styles is that educators tend to teach in accordance with their own learning styles. Therefore, students possessing the same learning styles as the educator tend to succeed with that educator's style of teaching. (Cornett, 1983) It would be to your students' advantage, as a whole, for you to assess your own learning styles and make special efforts to be "flexible" in your teaching styles. For both general

and clinical education, "the ultimate goal is to have both teachers and students become knowledgeable about their styles so they can consciously adjust, adapt, or modify them in order to increase learning." (Cornett, 1983)

It is important for you to understand these characteristics of learning styles in order to better understand your students' learning styles. Through proper assessment, you can determine each student's learning style so that you can teach more effectively. Before assessment can be attempted, you must first study the elements which combine to form learning style.

Take Self-Check Activity #2 before going on!

SELF-CHECK FOR LEARNING ACTIVITY #2

Directions: Give a short answer for each of the following questions.

1. Since learning style modality strengths and learning style modality preferences change according to age, what should the educators do to make sure their learning style assessments are current?

2. A principle of learning styles is that a wide range of learning styles exists among the students in a given class. Knowing this, what should the clinical instructor do to help the students learn?

3. When you wish to encourage the student to try a new learning style, should you teach a new task or a familiar task?

Check your answers with the Answer Key!

SELF-CHECK ANSWER KEY

1. Learning style assessments should be conducted a number of times as the student grows older. (A suggested time interval for reassessment might be every 2-3 years.)

2. The clinical instructor must make sure that he/she uses a wide range of teaching styles to satisfy the wide range of learning styles that exist.

3. Familiar -- When teaching new tasks, the teaching and learning styles should be matched. (When encouraging learning style flexibility, familiar tasks should be taught.)

If you understand the reasons for learning style assessment in clinical education, move on to Learning Activity #3. If not, review this activity again.

LEARNING ACTIVITY #3

THE ELEMENTS OF LEARNING STYLE

Enabling Objective 3: Given a list of the Dunns' learning elements, explain each of them as they apply to the clinical setting.

As mentioned at the beginning of this module, the Dunns have done considerable research on the subject of learning styles. Although most of their studies have been on the learning styles of children, the basic theory they have devised for explaining learning styles is quite explicit--so explicit that it could be easily implemented into a variety of educational settings. After carefully studying the basic theory, you could readily apply it to your clinical setting and to your individual students. By carefully examining your clinical setting, you can determine the amount of freedom you have for manipulating the stimuli listed below.

Stimuli which Affect Learning, and Their Respective Elements

The Dunns have determined that learning is affected by several different stimuli. These stimuli include:

1) Environmental Stimuli
2) Emotional Stimuli
3) Sociological Stimuli
4) Physical Stimuli
5) Psychological Stimuli

Within each stimulus, the Dunns have defined several different elements which further describe the learning stimulus. These elements are the discrete characteristics of learning types which set one learner apart from another. These elements also help to describe the learner as having a certain "type" or "style."

1) Environmental Stimuli

The elements under the environmental stimuli are:

1) sound
2) light
3) temperature
4) room design

The environment can provide your students with many sound distractions, which can affect their learning. To one student, the sound of music may be a distraction, while to another the distraction may be silence. Assess

yourself. Are you able to "block out" noise in order to concentrate, or do you need silence? You can easily "pipe in" music for those who desire music for stimulation or relaxation. For those who require silence, arrangements can be made to reduce the noise level of any department.

Similarly, light can provide a distraction. For some, fluorescent light gives them a headache. The bright light may be a distractor to these students, while dim light may have the same effect on others. The lights in your clinical department could easily be dimmed or brightened, according to the desires of all individuals involved.

The temperature of the study or work room can affect concentration or productiveness. Some students may actually "freeze" their thought processes if the room falls below a certain temperature level, while other students may fall asleep if the room rises above a certain temperature. Obviously, this can hinder learning and productivity. In your department, temperature can easily be manipulated, but it should not be set to any extreme. Rather, it should be set to suit all who enter the department.

The room design affects learning because it "sets the mood" for learning. The arrangement and style of chairs, desks or tables, the arrangement of the equipment in the room, and the decorations within the room all "set the mood" for learning. Some students may prefer a formal setting or "mood." Many department managers of offices, businesses and hospitals are discovering the positive effects certain types of interior designs have on work stress and productivity. Some interior designs may actually have negative effects. Decorating with brightly colored walls, soothing colored walls, or inspirational wall murals to "set the mood" could induce creative and relaxed work. Arrangements to change the interior design of the department could be requested at departmental meetings to suit practitioners and students alike. The arrangement of equipment and supplies could also have effects on work stress and productivity. If your students must work in a certain room or area for any long period of time, they should be given the freedom to arrange supplies and/or equipment they will utilize to increase their productivity and effectiveness. However, if any environmental elements of your department are to be manipulated, all persons involved (including your patients or clients!) should be consulted before any drastic changes are made.

Emotional Stimuli

The emotional elements include:

1) motivation
2) persistence
3) responsibility
4) structure

These elements affect how students are able to achieve through some sort of emotional stimulation. The source of motivational stimulation can

be from the students themselves (self-motivation), from teachers, or from significant others (people who are of relative importance in one's life). Some students do not seem to be motivated toward school or work at all! If any of your students are not very self-motivated, these students should be motivated in some other way to complete their work. You, or any others who may have a significant motivational influence on your students, can become motivators for them. If your students have little or no motivation toward school or the workplace, the tasks you present to them could serve as motivators. Some other motivational strategies you could try include:

- setting realistic goals for students
- setting time deadlines on tasks
- giving students positive feedback
- providing reinforcement
- proving the tasks to be relevant for students

Some students may be motivated to start a task, but they may find it difficult to "stay on" a task. The persistence of students is an emotional element which stimulates them to continue the work they start. Although students may be able to complete a task, they may not take the responsibility to do it. Students with little persistence toward getting tasks done should be motivated to do so in much the same way that students are motivated to start a task. However, you should use your motivational strategies intermittently while the students are performing the task. One of the most effective motivators for persistence is a restatement of the goals you expect them to accomplish by the end of the day.

The responsibility element is the emotional element which deals with the amount of responsibility students will assume to start and/or complete assignments--especially those students who are required to work with minimal supervision. Your students who do not take responsibility to start or complete work should be encouraged to take on a series of tasks requiring gradually increasing responsibility. When they successfully complete the responsible task, make sure you give them immediate positive feedback on their behavior. Furthermore, the task you choose should be one that they will be able to perform on their own.

If your students are not able to work on their own, your assignments may have to be structured in a way that rigidly follows a precise pattern. However, your students who are more independent learners may want a more flexible structure. The structure of the assignment is an emotional element, which deals with the amount of rigidity or flexibility needed by students.

All of these emotional elements describe stimuli which affect the way in which your students learn. In order for positive changes to occur within these emotional elements, you must be very perceptive of the level of motivation, persistence and responsibility your students show. A learning style assessment aids in making your perceptions.

3) Sociological Stimuli:

The sociological element of a learning style emphasizes the different strategies of social structure which may help students to achieve. These strategies include working with:

1) one's self
2) a peer
3) two peers
4) a group of peers
5) an adult

Your students may like to work in one or a combination of these strategies. The strategy which your students like best would be considered their sociological learning style preference. You can very easily manipulate the sociological element to encourage the flexibility of your students' learning styles.

If some of your students like to work in groups or pairs, let them perform their tasks in a group or with a partner. Of course, if the tasks are required to be performed "solo," each student would eventually have to perform the tasks on his/her own. You can use the group or pair method to help your students feel secure when they are to perform a new task. You can also use these methods to encourage students who like to work alone, to work in teams. However, caution must be exercised when using the strategies which involve the use of peers. Your students working with groups or pairs should be supervised closely enough so that they adhere to the assigned task.

If students under your supervision prefer working with an adult, you could work directly with these students or else assign a practitioner to them. When giving them new tasks which must be done "solo," these students will have to eventually perform these tasks without the help of an adult.

Still other students of yours may prefer to work alone all of the time. This is fine practice; however, these students must be supervised very closely so no mistakes go unnoticed. Also, these students should be encouraged to become more flexible with their learning style, through the group or pair method, so that that they learn how to work as a team.

The sociological elements are very easily manipulated in the clinical setting. These elements can serve two important purposes in the clinical setting:

1) To provide a means for the students to become more flexible in the way they learn to perform tasks.

2) To provide the students with a sense of "security" when performing a task for the first time.

4) Physical Stimuli

The physical elements include:

1) perceptual (visual, auditory, and tactile/kinesthetic)
2) intake
3) time
4) mobility

Some students like best to take in information when they see a diagram, picture or written description of the material (visual). Other students like to learn by listening to tapes, records, or lectures (auditory). Still other students prefer to learn by doing the task or acting out a situation (tactile/kinesthetic). The perceptual sense or modality that students prefer for learning is part of their learning style preference. Oftentimes the perceptual sense in which students like to learn is not necessarily the perceptual sense in which they learn best. Therefore, it is particularly important for you to assess both perceptual modality preference and perceptual modality strengths. Introduce material or tasks to your students in their strongest perceptual modality and highest perceptual modality preference. Then, reinforce the material through their supplementary modality strengths and preferences. This encourages the students to be more flexible in the ways that they learn (Dunn, 1981).

In the clinical setting, the most predominant perceptual learning style element is the "tactile/kinesthetic" type, because learning is expected to be accomplished by doing a task. Hence, your students who are of the tactile/kinesthetic learning style would most probably be able to perform new tasks with ease. But those students who have "visual" or "auditory" styles will need further instruction for performing new and difficult tasks. You may explain the task assignments in written language, or with the help of a diagram, chart, or picture, for your students with a "visual" learning style. For your "auditory" style students, you could explain their task assignments through one-on-one discussion or peer group discussion before they perform the task. It is important for you to become a "mediator" when you are encouraging flexibility of learning style.

There are some students who cannot concentrate on a task unless they are eating, drinking or chewing on a piece of gum. These students feel a need to intake in order to learn. Depending on the circumstances, students should be provided "breaks" for intake.

Another physical element that can have an influence on students is the time of day materials or tasks are to be learned. In the clinical setting, those students whose learning is influenced by the time of day could be very feasibly accommodated. Depending on whether or not the institution will allow it, the "night owls" could be

scheduled for the night shift and the "early morning risers" for the day shift. However, time "flexibility" should be encouraged, especially in the field of health-care. Because of the present economy, health-care graduates cannot "pick and choose" the shift they desire to work. Therefore, they should be exposed to both night and day shift experience, in order to encourage the time flexibility they need to possess. If your institution runs strictly on the day shift schedule, "early morning risers" could be assigned the more difficult tasks in the morning. Similarly, the more difficult tasks could be assigned to the "night owls" in the afternoon or late morning. Moreover, these types of students should also be challenged to become more time-flexible by performing tasks at the time which they do not particularly prefer.

The last physical element emphasizes the amount of mobility a student prefers when performing tasks. Some students need a change in posture, location, or pace for a constant stimulation toward the work they are required to perform. For other students, too many changes would interfere with their learning processes. In your clinical setting you can accommodate both of these style groups with a minimal amount of effort. Those students who prefer a great amount of mobility can be provided their preference for constant stimulation, by being assigned a wide variety of tasks within a wide variety of settings. Those students who do not care to be "mobile" could be scheduled in one or two work areas and assigned a lesser variety of tasks. Students who desire to be mobile can gradually master the required tasks all in one grouping, while students who desire to be less mobile can gradually master tasks one-by-one. Once these tasks are relatively mastered, the students should be encouraged to be more mobility-flexible.

All of these physical elements must be considered as integral parts of each student's learning style. They can frequently be manipulated in the clinical setting, in order to match learning styles and encourage learning style flexibility.

5) Psychological Stimuli

The psychological elements have only been recognized by the Dunns as elements of learning style in recent years, but are certainly essential components of the learning style. They describe the ways in which students process or organize information. These include:

1) analytic/global
2) hemispheric preference (right brain, left brain)
3) impulsive/reflective

Analytic learners process information in sequential order. They like to learn material step-by-step. Their counterparts, the global learners, process information by looking at the "whole" material before studying the small details within the material. New and

difficult material should be taught either analytically or globally, depending on the style in which your students learn best. (Dunn, 1981) For your analytic learners, you can present a new task or procedure in a step-by-step fashion. These learners like to look at small details of learning material before looking at the whole concept behind it. Therefore, they may like to see the process of a task before the product. On the other hand, your global learners, who would rather look at the whole concept of learning material before the details of it, could benefit from an overall summary of the product of a task before being given the detailed step-by-step process.

Hemispheric preference (or cerebral dominance) is a recently discovered concept that has many implications for learning style assessment. Researchers have discovered that left brain individuals are superior at doing analytic tasks such as dealing with language or object classification. These learners like to analyze already defined concepts in a precise way. (Springer, 1981) Researchers have noted that right brain individuals seem to perform best with spatial tasks such as dealing with music and object combination. (Dunn, 1981) Also, they like to be creative when working with concepts. (Springer, 1981) Since your "left brain" students like to analyze the facts, concepts, and principles of learning material in a specific and precise way, you could give these students the material or task procedure they are to learn, plus explicit directions for completing the assignment. In contrast, your "right brain" students would rather be given the material or task to be learned, plus the freedom to complete the assignment in a creative way.

Finally, your students can be either impulsive or reflective in their thinking. Impulsive thinkers come to conclusions very quickly, often without weighing all the possibilities. On the other hand, reflective thinkers weigh all the possibilities and, therefore, are slower in coming to conclusions. (Dunn, 1981) Your impulsive students would probably rather be presented with a task which can be done in a very clear-cut way, so that they could finish it rapidly. Therefore, you should try a work schedule of several clear-cut tasks in a short period of time in order to keep them stimulated. Conversely, your reflective students would probably prefer tasks which have many possible ways of performance. A work schedule of a few multi-faceted tasks within a longer period of time may suit them best.

The theory presented by the Dunns (R. Dunn & K. Dunn, 1975 was originally developed for young children in the classroom; however, the basic concepts describe the styles of all learners. As a clinical instructor, you can apply this theory (and the theories of other learning style specialists listed in the references) to the clinical setting, so you can accommodate to your own students' learning styles. These are very practical and general suggestions for teaching students in a variety of styles in the clinical setting. For your own clinical setting, you would need to be more specific in the

ways you would manipulate the many learning style elements to suit your students' learning styles. Before you can attempt to teach according to learning style, you must first assess your students' learning styles. Move on to the next activity to find out how.

But first, complete the following Self-Check activity!

SELF-CHECK FOR LEARNING ACTIVITY #3

PART A: TEST OF KNOWLEDGE

I. Matching

Directions: Match the Learning Elements on the right with the Learning Stimuli on the left, by writing the letter of the element on the space to the left of the corresponding stimulus. Note: There will be more than one element for every stimulus.

Learning Stimuli		Learning Elements
1. _____	Environmental	a. structure
2. _____	Emotional	b. a peer c. sound
3. _____	Sociological	d. design e. an adult
4. _____	Physical	f. perceptual g. impulsive/reflective
5. _____	Psychological	h. time i. responsibility
		j. temperature k. a group of peers
		l. mobility m. one's self
		n. analytic/global o. light
		p. intake q. motivation
		r. two peers s. hemispheric preference
		t. persistence

II. Multiple Choice

Directions: For the following questions (6 & 7), circle the letter of the best response. Note: Assume that the matching of learning and teaching styles is desired for all of the questions.

6. If one of your students likes to learn tasks by actually doing the tasks, your student has which of the following learning style modality preferences?

a) visual
b) auditory
c) tactile/kinesthetic

7. If one of your students likes to organize information analytically, in which of the following ways would your student probably like to have new tasks presented?

   a) with the product of the tasks presented first
   b) in a step-by-step method
   c) given the whole concept of the task before the details are presented

III. Short Answer

Directions: For each of the following questions, give a brief answer.

8. In what two ways could the design of the work area be manipulated to suit students' learning styles and increase their productivity?

   a.

   b.

9. If you have a student who feels comfortable working with a practitioner on a task which must eventually be done solo, how should you assign the student to the task?

10. List three different approaches to teach a new task to students with a visual modality preference.

Check your Answers!

SELF-CHECK ANSWER KEY

FOR PART A

1. c, d, j, o — Environmental
2. a, i, q, t — Emotional
3. b, e, k, m, r — Sociological
4. f, h, l, p — Physical
5. g, n, s — Psychological

Multiple Choice

6. c
7. b

Short Answer

8. a. The interior design could be manipulated to suit the students' learning styles and, in turn, increase their productivity.

   b. The arrangement of supplies and equipment could be manipulated by the students to suit their own learning styles; consequently, their productivity should increase.

9. First, the student should be assigned to the task with a practitioner when the task is introduced. (After the student feels comfortable doing the task, the student must practice learning style flexibility by performing the task alone.)

10. Any three of the following approaches would be appropriate: pictures, diagrams, textbooks, audio-visual materials (TV, films, videotapes), computer-assisted instruction, models, demonstrations, and the use of imagery when explaining learning material.

If you received 3 wrong answers or less (great!), and you feel you can apply the Dunns' theory to the clinical setting, answer Part B of the Self-Check, and then move on to Learning Activity #4.

If you received more than 3 incorrect answers, please review Learning Activity #3 and retest your knowledge.

SELF-CHECK FOR LEARNING ACTIVITY #3

PART B: APPLYING YOUR KNOWLEDGE

For each of the Dunns' elements, identify all of the possible applications for your particular clinical setting.

You may consult a resource person, such as a department manager or educator.

LEARNING ACTIVITY #4

ASSESSING LEARNING STYLE USING AN INSTRUMENT OR TEST

Enabling Objective 4: Given a completed instrument or test for assessing learning style, assess the learning style using the Learning Style Checklist as a guide.

Assessing learning style can be very difficult if you do not have a form or sequence to follow. The use of a checklist and/or an instrument for assessing learning style makes the assessment more manageable. Many formal learning style assessment instruments are available commercially (these instruments are listed with the references at the end of the module). Unfortunately, these instruments do not seem to cover all of the elements mentioned in this module, specifically for clinical education at the secondary and adult levels. Furthermore, a single instrument typically measures either learning style preferences or learning style strengths. Therefore, the use of a combination of instruments is provided in this module, in order to give you a more complete learning style assessment.

In this module, you will first assess learning style preferences with a self-report instrument, entitled the Learning Style Preferences Instrument. This instrument is only a sample of the kinds of questions that are asked in the standardized, commercially available, learning style assessment instruments. This instrument is not a standardized instrument and should only be used as a rough indicator of learning style.

Secondly, the instrument following the Learning Style Preferences Instrument is a test which measures learning style modality strength, through the use of various task performances. It is called the Perceptual Modality Strength Test. When both of these assessments are performed, the learning style preferences and strengths of each student can be recorded on individual Learning Style Checklists, to be put in the student's permanent file.

The following is the Learning Style Preferences Instrument, which has been adapted from a Learning Style Questionnaire developed by Rita and Kenneth Dunn (Dunn & Dunn, 1977), an instrument developed by Claudia Cornett (Cornett, 1983), and an instrument developed for the Madison Schools Project (Madison Local Schools, 1982).

Responses are evaluated with the help of the Answer Key and the Learning Style Checklist following the instrument.

Assess yourself to try out the instrument!

PART "A" OF LEARNING ACTIVITY 4:

LEARNING STYLE PREFERENCE INSTRUMENT

Name: _____ **Date:** _____

Directions: Complete the following sentences by placing the check next to the one phrase which best describes your learning style preference.

I.

1. When I want to concentrate on a difficult task, I will work on the task . . .

   a) _____ with music playing
   b) _____ with complete silence
   c) _____ with some other sort of sound in the background. (specify: _____)

2. When I perform a task, I like the room to be . . .

   a) _____ very brightly lit
   b) _____ moderately lit
   c) _____ dimly lit
   d) _____ I have no preference to light

3. When I am working, I like the temperature of the room to be . . .

   a) _____ fairly cool, or I will feel too drowsy to work
   b) _____ fairly warm, or I will feel too cold to work
   c) _____ moderately warm, to make me feel comfortable working
   d) _____ temperature doesn't affect me unless it is extreme

4. When I am working in a room, I like the room to be . . .

   a) _____ painted in bright colors
   b) _____ painted in subdued colors
   c) _____ contain inspirational pictures and murals
   d) _____ interior design does not matter to me

5. When I am doing a written assignment I must be seated . . .

   a) _____ at a formal desk or table
   b) _____ in a casual chair or couch with a clip board
   c) _____ I have no preference

6. When I am working in a room . . .

a) _____ all supplies and equipment should be put in specific places
b) _____ it doesn't matter to me where things are placed

II.

7. I like to be motivated most by . . .

a) _____ myself
b) _____ my instructor
c) _____ significant other (close friends or relatives) (specify: _____)

8. After I start tasks, I . . .

a) _____ like to finish the tasks right away
b) _____ like an extra "push" to finish the task
c) _____ don't like to finish tasks I start

9. I . . .

a) _____ like to take on the responsibility to follow through with tasks on my own
b) _____ like to be reminded what tasks should be done
c) _____ don't like to take on the responsibility to follow through with tasks

10. I like to . . .

a) _____ be told exactly how tasks are expected to be done
b) _____ be given choices of how I could do the tasks that are expected of me

III.

11. When I am working on a task, most of the time I like to work . . .

a) _____ on my own
b) _____ with one peer
c) _____ with two peers
d) _____ with a group of peers
e) _____ with my instructor

IV.

12. I would rather learn by . . .

    a) _____ reading how something is done
    b) _____ being told how something is done
    c) _____ actually doing something

13. At school, I like to learn by . . .

    a) _____ working on projects
    b) _____ reading the material
    c) _____ listening to the material being presented

14. I like to remember things by . . .

    a) _____ repeating it verbally
    b) _____ reading it silently
    c) _____ writing it down

15. When working, I feel the need to . . .

    a) _____ eat
    b) _____ drink
    c) _____ chew gum
    d) _____ I don't feel the need to do any of the above when I work

16. I prefer to work . . .

    a) _____ early in the morning
    b) _____ late in the morning
    c) _____ in the afternoon
    d) _____ at night
    e) _____ late at night
    f) _____ I have no time preference

17. I like to work on . . .

    a) _____ one task at a time
    b) _____ a variety of tasks at a time

18. I like to work in . . .

    a) _____ one work area per day
    b) _____ several work areas per day

V.

19. I like to learn a new task by . . .

a) _____ learning the step-by-step process before studying the end result of the task
b) _____ studying the end result of the task before learning the step-by-step process

20. I like to learn new materials by . . .

a) _____ learning the whole concept of the material before the details
b) _____ learning the details of the material before the whole concept

21. I like to learn things . . .

a) _____ one at a time
b) _____ all at once

22. I like to . . .

a) _____ separate things or take things apart
b) _____ integrate things or put things together

23. When learning something new, I like to conceptualize it in . . .

a) _____ words
b) _____ images

24. When I learn a new task, I like to learn . . .

a) _____ how I can use it
b) _____ why it is used

25. When working through a problem, I like to . . .

a) _____ test the possibilities by trial and error until I find the one I feel is best
b) _____ question the possibilities and decide on the one I feel is best before I try it out

26. When working, I like to . . .

a) _____ think everything through before acting
b) _____ act by my intuitions

27. When working in a social situation, I like to be . . .

a) _____ reserved
b) _____ outgoing

The Answer Key to this instrument follows. Use the key to assess the responses you made, according to the directions given.

ANSWER KEY TO THE LEARNING STYLE

PREFERENCE INSTRUMENT

Note: The Learning Style Preference Instrument is a tool to help you identify how your students' learning style preferences differ so you can serve their preferences or encourage learning style flexibility. It is in no way intended to be used as a way to "label"students.

Directions for Assessing Learning Style Preferences:

To determine the preference for each element within each learning stimulus category, use this Answer Key as follows:

1) Mark the letter on the Answer Key which corresponds to the response marked on the Learning Style Preference Instrument.

2) Note the element preference. (Note: The elements which are more difficult to assess will have more than one question pertaining to them. For a concluding response on these elements, simply average the individual's responses.)

ANSWER KEY

CATEGORY I: ENVIRONMENTAL STIMULI

1. Sound element

a) _____ music preference
b) _____ silence preference
c) _____ noise preference (specific: _____)

2. Light element

a) _____ bright light preference
b) _____ moderate light preference
c) _____ dim light preference
d) _____ no preference to light

3. Temperature element

a) _____ cold preference
b) _____ hot preference
c) _____ moderate temperature preference
d) _____ no specific temperature preference

4. Room Design element (interior design)

a) _____ bright color preference
b) _____ subdued color preference
c) _____ inspirational decoration preference
d) _____ no interior design preference

5. Room Design element (type)

a) _____ formal design preference
b) _____ informal (casual) design preference
c) _____ no "type of design" preference

6. Room Design element (arrangement)

a) _____ rigid arrangement preference
b) _____ flexible arrangement preference

CATEGORY II: EMOTIONAL STIMULI

7. Motivation element (specific motivators)

a) _____ self-motivation preference
b) _____ instructor-motivation preference
c) _____ significant other motivation preference

8. Persistence element

a) _____ self-persistence preference
b) _____ little persistence preference
c) _____ prefers not to be persistent

9. Responsibility element

a) _____ self-responsibility preference
b) _____ little self-responsibility preference
c) _____ prefers not to be responsible

10. Structure element

a) _____ rigid preference
b) _____ flexible preference

CATEGORY III: SOCIOLOGICAL STIMULI

11. Strategies

a) _____ alone preference
b) _____ one peer preference
c) _____ two peer preference
d) _____ group of peers preference
e) _____ instructor preference

CATEGORY IV: PHYSICAL STIMULI (Average #12-14 for concluding response)

(12.) Perceptual modality element

a) _____ visual preference
b) _____ auditory preference
c) _____ tactile/kinesthetic preference

(13.) Perceptual modality element

a) _____ tactile/kinesthetic preference
b) _____ visual preference
c) _____ auditory preference

(14.) Perceptual modality element

a) _____ auditory preference
b) _____ visual preference
c) _____ tactile/kinesthetic preference

15. Intake element

a) _____ food preference
b) _____ drink preference
c) _____ chewing preference
d) _____ no intake need

16. Time element

a) _____ early morning preference
b) _____ late morning preference
c) _____ afternoon preference
d) _____ night preference
e) _____ late night preference
f) _____ no specific time preference

17. Mobility (task work) element

a) _____ single task preference
b) _____ variety of tasks preference

18. Mobility (work area) element

a) _____ single work area preference
b) _____ variety of work areas preference

CATEGORY V: PSYCHOLOGICAL STIMULI (Average #19-21 for a concluding response)

(19.) Analytic/Global element

a) _____ analytic preference
b) _____ global preference

(20.) Analytic/Global element

a) _____ global preference
b) _____ analytic preference

(21.) Analytic/Global element

a) _____ analytic preference
b) _____ global preference

(Average #22-24 for a concluding response)

(22.) Hemispheric preference element

a) _____ left brain preference
b) _____ right brain preference

(23.) Hemispheric Preference element

a) _____ left brain preference
b) _____ right brain preference

(24.) Hemispheric preference element

a) _____ left brain preference
b) _____ right brain preference

(Average #25-27 for a concluding response)

(25.) Impulsive/reflective element

a) _____ impulsive preference
b) _____ reflective preference

(26.) Impulsive/reflective element

a) _____ reflective preference
b) _____ impulsive preference

(27.) Impulsive/reflective element

a) _____ reflective preference
b) _____ impulsive preference

Now that you have completed the Answer Key, proceed to the final step of assessing learning style preferences--the Learning Style Checklist.

The Learning Style Checklist which follows is an aid to help you assess learning style preferences from this instrument. Comments gathered from the preceding instrument should be made under the "Preference Instrument" column. (This Checklist will later be used for assessing learning style strengths as well.)

Directions for Completing the Learning Style Checklist

1) Using the Answer Key just completed, note the element preference for each item.

2) On the Checklist, write the element preference under the "Preference Instrument" column. (Note: The number in parentheses signifies the question pertaining to that particular element.)

3) Average the three responses under the perceptual; analytical/global; hemispheric preference; and impulsive/reflective elements.

LEARNING STYLE CHECKLIST

Name: _____ **Date:** _____

Comments based on (a) the preference instrument, (b) modality strength test, and (c) strength observations conducted for this individual student.

	Preference Instrument	Strength Observations	Modality Strength Test
I. Environmental Stimuli			
a. sound (1)	_____	_____	
b. light (2)	_____	_____	
c. temperature (3)	_____	_____	
d. design - interior design (4)	_____	_____	
- type (5)	_____	_____	
- arrangement (6)	_____	_____	
II. Emotional Stimuli			
a. motivation (7)	_____	_____	
b. persistence (8)	_____	_____	
c. responsibility (9)	_____	_____	
d. structure (10)	_____	_____	
III. Sociological Stimuli (11)			
a. oneself	_____	_____	
b. a peer (pairs)	_____	_____	
c. two peers	_____	_____	
d. a group of peers	_____	_____	
e. an adult (instructor or practitioner)	_____	_____	
IV. Physical Stimuli			
a. perceptual (12)(13)(14)	_____	_____	_____
b. intake (15)	_____	_____	
c. time (16)	_____	_____	
d. mobility - task work (17)	_____	_____	
- work area (18)	_____	_____	

	Preference Instrument	Strength Observations	Modality Strength Test
V. Psychological Stimuli			
a. Analytic/Global (19)(20)(21)	_____	_____	
b. Hemispheric preference or dominance (22)(23)(24)	_____	_____	
c. Impulsive/reflective (25)(26)(27)	_____	_____	

Now that you have completed the Learning Style Preference Instrument, you are probably aware of your own learning style preferences. Hopefully, completion of the instrument has also helped you to grasp the basic concepts of learning style preferences.

EXAMPLE OF LEARNING STYLE PREFERENCE ASSESSMENT

In order to further your understanding of learning style preference assessment, the following hypothetical example of a completed Learning Style Preference Instrument is provided. Use it to:

- Study the evaluation process used in assessing the student's learning style preference.
- Examine how the Answer Key is used to translate the student's responses to "learning style element" terms.
- Note the method used to fill in the Checklist.

EXAMPLE

LEARNING STYLE PREFERENCE INSTRUMENT

Name: _____ **Date** _____

Directions: Complete the following sentences by placing the check next to the one phrase which best describes your learning style preference.

I.

1. When I want to concentrate on a difficult task, I will work on the task . . .

   a) _____ with music playing
   b) __X__ with complete silence
   c) _____ with some other sort of sound in the background (specify: _____)

2. When I perform a task, I like the room to be . . .

   a) __X__ very brightly lit
   b) _____ moderately lit
   c) _____ dimly lit
   d) _____ I have no preference to light

3. When I am working, I like the temperature of the room to be . . .

   a) _____ fairly cool or I will feel too drowsy to work
   b) __X__ fairly warm or I will feel too cold to work
   c) _____ moderately warm, to make me feel comfortable working
   d) _____ temperature doesn't affect me unless it is extreme

4. When I am working in a room, I like the room to be . . .

   a) __X__ painted in bright colors
   b) _____ painted in subdued colors
   c) _____ contain inspirational pictures and murals
   d) _____ interior design does not matter to me

5. When I am doing a written assignment I must be seated . . .

   a) __X__ at a formal desk or table
   b) _____ in a casual chair or couch with a clip board
   c) _____ I have no preference

EXAMPLE (continued)

6. When I am working in a room . . .

a) ___X___ all supplies and equipment should be put in specific places
b) _____ it doesn't matter to me where things are placed

II.

7. I like to be motivated most by . . .

a) _____ by myself
b) ___X___ my instructor
c) _____ significant other (close friends or relatives) (specify: _____)

8. After I start tasks, I . . .

a) _____ like to finish the tasks right away
b) ___X___ like an extra "push" to finish the task
c) _____ don't like to finish tasks I start

9. I . . .

a) _____ like to take on the responsibility to follow through with tasks on my own
b) ___X___ like to be reminded what tasks should be done
c) _____ don't like to take on the responsibility to follow through with tasks

10. I like to . . .

a) ___X___ be told exactly how tasks are expected to be done
b) _____ be given choices of how I could do the tasks that are expected of me

III.

11. When I am working on a task, most of the time I like to work . . .

a) _____ on my own
b) _____ with one peer
c) _____ with two peers
d) _____ with a group of peers
e) ___X___ with my instructor

EXAMPLE (continued)

IV.

12. I would rather learn by . . .

a) _____ reading how something is done
b) _____ being told how something is done
c) __X__ actually doing something

13. At school, I like to learn by . . .

a) _____ listening to the material being presented
b) __X__ reading the material
c) _____ listening to the material being presented

14. I like to remember things by . . .

a) _____ repeating it verbally
b) _____ reading it silently
c) __X__ writing it down

15. When working, I feel the need to . . .

a) _____ eat
b) _____ drink
c) __X__ chew gum
d) _____ I don't feel the need to do any of the above when I work

16. I prefer to work . . .

a) _____ early in the morning
b) __X__ late in the morning
c) _____ in the afternoon
d) _____ at night
e) _____ late at night
f) _____ I have no time preference

17. I like to work on . . .

a) __X__ one task at a time
b) _____ a variety of tasks at a time

18. I like to work in . . .

a) __X__ one work area per day
b) _____ several work areas per day

EXAMPLE (continued)

V.

19. I like to learn a new task by . . .

a) ___X___ learning the step-by-step process before studying the end result of the task
b) _____ studying the end result of the task before learning the step-by-step process

20. I like to learn new materials by . . .

a) _____ learning the whole concept of the material before the details
b) ___X___ learning the details of the material before the whole concept

21. I like to learn things . . .

a) ___X___ one at a time
b) _____ all at once

22. I like to . . .

a) ___X___ separate things or take things apart
b) _____ integrate things or put things together

23. When learning something new, I like to conceptualize it in . . .

a) ___X___ words
b) _____ images

24. When I learn a new task, I like to learn . . .

a) ___X___ how I can use it
b) _____ why it is used

25. When working through a problem, I like to . . .

a) ___X___ test the possibilities by trial and error until I find the one I feel is best
b) _____ question the possibilities and decide on the one I feel is best before I try it out

26. When working, I like to . . .

a) ___X___ think everything through before acting
b) _____ act by my intuitions

EXAMPLE (continued)

27. When working in a social situation, I like to be . . .

a) ___X___ reserved
b) _____ outgoing

(Read the completed Answer Key which follows to identify the learning style elements the student prefers.)

EXAMPLE (continued)

ANSWER KEY TO THE LEARNING STYLE

PREFERENCE INSTRUMENT

Directions for Assessing Learning Style Preferences:

To determine the preference for each element within each learning stimulus category, use this Answer Key as follows:

1) Mark the letter on the Answer Key which corresponds to the response marked on the Learning Style Preference Instrument.

2) Note the element preference. (Note: The elements which are more difficult to assess will have more than one question pertaining to them. For a concluding response on these elements, simply average the individual's responses.)

ANSWER KEY

CATEGORY I: ENVIRONMENTAL STIMULI

1. Sound element

a) _____ music preference
b) __X__ silence preference
c) _____ noise preference (specific: _____)

2. Light element

a) __X__ bright light preference
b) _____ moderate light preference
c) _____ dim light preference
d) _____ no preference to light

3. Temperature element

a) _____ cold preference
b) __X__ hot preference
c) _____ moderate temperature preference
d) _____ no specific temperature preference

4. Room Design element (interior design)

a) __X__ bright color preference
b) _____ subdued color preference
c) _____ inspirational decoration preference
d) _____ no interior design preference

EXAMPLE (continued)

5. Room Design element (type)

a) ___X___ formal design preference
b) _____ informal (casual) design preference
c) _____ no "type of design" preference

6. Room Design element (arrangement)

a) ___X___ rigid arrangement preference
b) _____ flexible arrangement preference

CATEGORY II: EMOTIONAL STIMULI

7. Motivation element (specific motivation)

a) _____ self-motivation preference
b) ___X___ instructor-motivation preference
c) _____ significant other motivation preference

8. Persistence element

a) _____ self-persistence preference
b) ___X___ little persistence preference
c) _____ prefers not to be persistent

9. Responsibility element

a) _____ self-responsibility preference
b) ___X___ little self-responsibility preference
c) _____ prefers not to be responsible

10. Structure element

a) ___X___ rigid preference
b) _____ flexible preference

CATEGORY III: SOCIOLOGICAL STIMULI

11. Strategies

a) _____ alone preference
b) _____ one peer preference
c) _____ two peer preference
d) _____ group of peers preference
e) ___X___ instructor preference

EXAMPLE (continued)

CATEGORY IV: PHYSICAL STIMULI (Average #12-14 for concluding response)

(12.) Perceptual modality element

a) ____ visual preference
b) ____ auditory preference
c) __X__ tactile/kinesthetic preference

(13.) Perceptual modality element

a) ____ tactile/kinesthetic preference
b) __X__ visual preference
c) ____ auditory preference

(14.) Perceptual modality element

a) ____ auditory preference
b) ____ visual preference
c) __X__ tactile/kinesthetic preference

15. Intake element

a) ____ food preference
b) ____ drink preference
c) __X__ chewing preference
d) ____ no intake need

16. Time element

a) ____ early morning preference
b) __X__ late morning preference
c) ____ afternoon preference
d) ____ night preference
e) ____ late night preference
f) ____ no specific time preference

17. Mobility (task work) element

a) __X__ single task preference
b) ____ variety of tasks preference

18. Mobility (work area) element

a) __X__ single work area preference
b) ____ variety of work areas preference

EXAMPLE (continued)

CATEGORY V: PSYCHOLOGICAL STIMULI (Average #19-21 for a concluding response)

(19.) Analytic/Global element

a) ___X___ analytic preference
b) _____ global preference

(20.) Analytic/Global element

a) _____ global preference
b) ___X___ analytic preference

(21.) Analytic/Global element

a) ___X___ analytic preference
b) _____ global preference

(Average #22-24 for a concluding response)

(22.) Hemispheric preference element

a) ___X___ left brain preference
b) _____ right brain preference

(23.) Hemispheric preference element

a) ___X___ left brain preference
b) _____ right brain preference

(24.) Hemispheric preference element

a) ___X___ left brain preference
b) _____ right brain preference

(Average #25-27 for a concluding response)

(25.) Impulsive/reflective element

a) ___X___ impulsive preference
b) _____ reflective preference

(26.) Impulsive/reflective element

a) ___X___ reflective preference
b) _____ impulsive preference

EXAMPLE (continued)

(27.) Impulsive/reflective element

a) ___X___ reflective preference
b) _____ impulsive preference

Now proceed to the final step of recording learning style preferences--the Learning Style Checklist:

1) On the Checklist which follows, note how the element preferences are filled in under the "Preference Instrument" column. (Remember, the number in parentheses signifies the question pertaining to that particular element.)

2) Note that the three responses under the perceptual, analytical/global, hemispheric preference, and impulsive/reflective elements, are averaged.

EXAMPLE (continued)

LEARNING STYLE CHECKLIST

Name: Sandy Student **Date:** 00/00/00

Comments based on (a) the preference instrument, (b) modality strength test, and (c) strength observations conducted for this individual student.

	Preference Instrument	Strength Observations	Modality Strength Test
I. Environmental Stimuli			
a. sound (1)	silence		
b. light (2)	bright		
c. temperature (3)	hot		
d. design - interior design (4)	bright colors		
- type (5)	formal		
- arrangement (6)	rigid		
II. Emotional Stimuli			
a. motivation (7)	instructor		
b. persistence (8)	little		
c. responsibility (9)	little		
d. structure (10)	rigid		
III. Sociological Stimuli (11)			
a. oneself			
b. a peer (pairs)			
c. two peers			
d. a group of peers			
e. an adult (instructor or practitioner)	X		
IV. Physical Stimuli			
a. perceptual (12)(13)(14)	(t/k, v, t/k)=t/k		
b. intake (15)	chewing		
c. time (16)	late morning		
d. mobility - task work (17)	single task		
- work area (18)	single work area		

EXAMPLE (continued)

	Preference Instrument	Strength Observations	Modality Strength Test
V. Psychological Stimuli			
a. Analytic/Global (19)(20)(21)	(an, an, an)=an		_____
b. Hemispheric preference or dominance (22)(23)(24)	(lt, lt, lt)=lt		_____
c. Impulsive/reflective (25)(26)(27)	(imp, refl, refl)=refl		_____

This concludes the EXAMPLE of assessment of "Sandy Student's" learning style preferences. Hopefully, your understanding of the Learning Style Preference Instrument was enhanced by examining its use on a hypothetical student.

Now proceed to Part B of the Learning Activity #4.

PART "B" OF LEARNING ACTIVITY #4:

PERCEPTUAL MODALITY STRENGTH TEST

Since the assessment of perceptual modalities is an especially important element of the total learning style assessment, it would be to your best advantage to make additional assessments of this particular element. The following Perceptual Modality Strength Test has been included to aid in the assessment of your students' perceptual modality strengths. This test should be conducted for the entire group of students at one time, but can also be conducted on an individual basis.

Before conducting the test, ask the students to take out a sheet of paper and pen. Tell them that you are testing their ability to remember a list of ten words. It would not be wise to tell them that you are testing their learning style, because if you did, they may perform in their perceptual preference.

Follow the directions on the test for each modality strength category. Then, use the information on the following Answer Key to assess your students' perceptual modality strengths. Finally, using the Learning Style Checklist (previously discussed in Part A of this Learning Activity), list each student's perceptual modality strength under the column entitled, "Modality Strength Test."

PERCEPTUAL MODALITY STRENGTH TEST

I. Visual Strength - Write the following list of words on the board. Let the students study the list for five minutes. Erase the board and have the students write the list of words on a sheet of paper in order.

1. toothpaste
2. soap
3. tissue
4. comb
5. pencil
6. hairpin
7. stamps
8. paper
9. typewriter
10. eraser

II. Auditory Strength - Read the following list of words slowly and clearly to the students, without having them copy them. Repeat the list of words two times. Have the students write the list of words on a sheet of paper in order.

1. clip
2. nail
3. powder
4. razor
5. ice
6. hook
7. board
8. light
9. ball
10. chalk

III. Tactile/Kinesthetic Strength - Write the following list of words on the board and have the students copy the list of words as you say them. After they are finished, collect the list of words. Have the students write the list of words on another sheet of paper in order.

1. lipstick
2. pen
3. string
4. candy
5. hammer
6. floor
7. brush
8. glass
9. book
10. candle

PERCEPTUAL MODALITY STRENGTH TEST

ANSWER KEY

This test is simply assessed by totaling the number of words the student was able to recall in order for each of the three modalities. The modality with the largest total number of correct words recalled represents the student's strongest perceptual modality for remembering lists of unrelated words.

If any two of the categories have the same number of correct words, this indicates a possible dual-strength. Other tests such as the Learning Style Preference Instrument or teacher-observations may help you pinpoint the stronger of the two modalities.

For Example:

> Sandy Student turned in an answer sheet with 5 words correct on the first exercise, 3 words correct on the second exercise, and 8 words correct on the last exercise. You would make a comment on the Learning Style Checklist, in the last column, that she has a tactile/kinesthetic modality strength.

Applying the Information:

After you record your students' learning styles on the checklist, you can use the information to teach them according to their learning styles.

For example, Sandy Student likes to be taught in the tactile/kinesthetic perceptual modality. It is also her strongest perceptual modality. If you were her instructor, you would teach her new and difficult tasks by having her actually do them. Since she feels she has little persistence and responsibility, and likes to be motivated by her instructor, you would become her motivator by reminding her of assignments and tasks to be done by a certain time period. Her psychological preferences indicate that she likes to analyze learning material step-by-step, one at a time, and with a certain amount of reflection. Hence, you would teach her tasks slowly in a step-by-step fashion. Lastly, you would try to provide her with an environment of bright light, bright colors, and a formal and rigid setting, because this is what suits her best.

Go ahead to the Self-Check for Learning Activity #4 to measure your ability to assess learning style!

SELF-CHECK FOR LEARNING ACTIVITY #4

LEARNING STYLE PREFERENCE INSTRUMENT -- SAMPLE TEST

Directions:

1) The following Learning Style Preference Instrument is a sample of an instrument that "Sam Student" completed. Use the Answer Key following the instrument to assess Sam Student's learning style. Next, record your comments from the Answer Key on the Learning Style Checklist which follows.

2) Following the Learning Style Preference Instrument is a sample of a Perceptual Modality Strength Test answer sheet for the same student. After assessing Sam Student's perceptual modality strength, go back to his Learning Style Checklist and record your comment in the "Modality Strength Test" column.

3) When you have finished, proceed to the Self-Check Answer Key to see if you have accurately assessed Sam Student's learning style preference and perceptual modality strengths!

LEARNING STYLE PREFERENCE INSTRUMENT

Name: Sam Student **Date:** 00/00/00

Directions: Complete the following sentences by placing the check next to the one phrase which best describes your learning style preference.

I.

1. When I want to concentrate on a difficult task, I will work on the task . . .

   a) _____ with music playing
   b) __X__ with complete silence
   c) _____ with some other sort of sound in the background. (specify: _____)

2. When I perform a task, I like the room to be . . .

   a) _____ very brightly lit
   b) __X__ moderately lit
   c) _____ dimly lit
   d) _____ I have no preference to light

3. When I am working, I like the temperature of the room to be . . .

   a) _____ fairly cool, or I will feel too drowsy to work
   b) _____ fairly warm, or I will feel too cold to work
   c) __X__ moderately warm, to make me feel comfortable working
   d) _____ temperature doesn't affect me unless it is extreme

4. When I am working in a room, I like the room to be . . .

   a) _____ painted in bright colors
   b) __X__ painted in subdued colors
   c) _____ contain inspirational pictures and murals
   d) _____ interior design does not matter to me

5. When I am doing a written assignment I must be seated . . .

   a) __X__ at a formal desk or table
   b) _____ in a casual chair or couch with a clip board
   c) _____ I have no preference

6. When I am working in a room . . .

   a) _____ all supplies and equipment should be put in specific places
   b) __X__ it doesn't matter to me where things are placed

II.

7. I like to be motivated most by . . .

a) ___X___ myself
b) _____ my instructor
c) _____ significant other (close friends or relatives)
(specify: _____)

8. After I start tasks, I . . .

a) ___X___ like to finish the tasks right away
b) _____ like an extra "push" to finish the task
c) _____ don't like to finish tasks I start

9. I . . .

a) ___X___ like to take on the responsibility to follow through with tasks on my own
b) _____ like to be reminded what tasks should be done
c) _____ don't like to take on the responsibility to follow through with tasks

10. I like to . . .

a) _____ be told exactly how tasks are expected to be done
b) ___X___ be given choices of how I could do the tasks that are expected of me

III.

11. When I am working on a task, most of the time I like to work . . .

a) ___X___ on my own
b) _____ with one peer
c) _____ with two peers
d) _____ with a group of peers
e) _____ with my instructor

IV.

12. I would rather learn by . . .

a) _____ reading how something is done
b) _____ being told how something is done
c) ___X___ actually doing something

13. At school, I like to learn by . . .

a) ___X___ working on projects
b) _____ reading the material
c) _____ listening to the material being presented

14. I like to remember things by . . .

a) _____ repeating it verbally
b) _____ reading it silently
c) ___X___ writing it down

15. When working, I feel the need to . . .

a) _____ eat
b) ___X___ drink
c) _____ chew gum
d) _____ I don't feel the need to do any of the above when I work

16. I prefer to work . . .

a) ___X___ early in the morning
b) _____ late in the morning
c) _____ in the afternoon
d) _____ at night
e) _____ late at night
f) _____ I have no time preference

17. I like to work on . . .

a) ___X___ one task at a time
b) _____ a variety of tasks at a time

18. I like to work in . . .

a) ___X___ one work area per day
b) _____ several work areas per day

V.

19. I like to learn a new task by . . .

a) ___X___ learning the step-by-step process before studying the end result of the task
b) _____ studying the end result of the task before learning the step-by-step process

20. I like to learn new materials by . . .

a) _____ learning the whole concept of the material before the details
b) __X__ learning the details of the material before the whole concept

21. I like to learn things . . .

a) __X__ one at a time
b) _____ all at once

22. I like to . . .

a) _____ separate things or take things apart
b) __X__ integrate things or put things together

23. When learning something new, I like to conceptualize it in . . .

a) _____ words
b) __X__ images

24. When I learn a new task, I like to learn . . .

a) __X__ how I can use it
b) _____ why it is used

25. When working through a problem, I like to . . .

a) __X__ test the possibilities by trial and error until I find the one I feel is best
b) _____ question the possibilities and decide on the one I feel is best before I try it out

26. When working, I like to . . .

a) _____ think everything through before acting
b) __X__ act by my intuitions

27. When working in a social situation, I like to be . . .

a) _____ reserved
b) __X__ outgoing

ANSWER KEY TO THE LEARNING STYLE

PREFERENCE INSTRUMENT

Directions for Assessing Learning Style Preferences:

To determine the preference for each element within each learning stimulus category, use this Answer Key as follows:

1) Mark the letter on the Answer Key which corresponds to the response marked on the Learning Style Preference Instrument.

2) Note the element preference. (Note: The elements which are more difficult to assess will have more than one question pertaining to them. For a concluding response on these elements, simply average the individual's responses.)

CATEGORY I: ENVIRONMENTAL STIMULI

1. Sound element

a) _____ music preference
b) _____ silence preference
c) _____ noise preference (specific: _____)

2. Light element

a) _____ bright light preference
b) _____ moderate light preference
c) _____ dim light preference
d) _____ no preference to light

3. Temperature element

a) _____ cold preference
b) _____ hot preference
c) _____ moderate temperature preference
d) _____ no specific temperature preference

4. Room Design element (interior design)

a) _____ bright color preference
b) _____ subdued color preference
c) _____ inspirational decoration preference
d) _____ no interior design preference

5. Room Design element (type)

a) _____ formal design preference
b) _____ informal (casual) design preference
c) _____ no "type of design" preference

6. Room Design element (arrangement)

a) _____ rigid arrangement preference
b) _____ flexible arrangement preference

CATEGORY II: EMOTIONAL STIMULI

7. Motivation element (specific motivators)

a) _____ self-motivation preference
b) _____ instructor-motivation preference
c) _____ significant other motivation preference

8. Persistence element

a) _____ self-persistence preference
b) _____ little persistence preference
c) _____ prefers not to be persistent

9. Responsibility element

a) _____ self-responsibility preference
b) _____ little self-responsibility preference
c) _____ prefers not to be responsible

10. Structure element

a) _____ rigid preference
b) _____ flexible preference

CATEGORY III: SOCIOLOGICAL STIMULI

11. Strategies

a) _____ alone preference
b) _____ one peer preference
c) _____ two peer preference
d) _____ group of peers preference
e) _____ instructor preference

CATEGORY IV: PHYSICAL STIMULI (Average #12-14 for concluding response)

(12.) Perceptual modality element

a) _____ visual preference
b) _____ auditory preference
c) _____ tactile/kinesthetic preference

(13.) Perceptual modality element

a) _____ tactile/kinesthetic preference
b) _____ visual preference
c) _____ auditory preference

(14.) Perceptual modality element

a) _____ auditory preference
b) _____ visual preference
c) _____ tactile/kinesthetic preference

15. Intake element

a) _____ food preference
b) _____ drink preference
c) _____ chewing preference
d) _____ no intake need

16. Time element

a) _____ early morning preference
b) _____ late morning preference
c) _____ afternoon preference
d) _____ night preference
e) _____ late night preference
f) _____ no specific time preference

17. Mobility (task work) element

a) _____ single task preference
b) _____ variety of tasks preference

18. Mobility (work area) element

a) _____ single work area preference
b) _____ variety of work areas preference

CATEGORY V: PSYCHOLOGICAL STIMULI (Average #19-21 for a concluding response)

(19.) Analytic/Global element

a) _____ analytic preference
b) _____ global preference

(20.) Analytic/Global element

a) _____ global preference
b) _____ analytic preference

(21.) Analytic/Global element

a) _____ analytic preference
b) _____ global preference

(Average #22-24 for a concluding response)

(22.) Hemispheric preference element

a) _____ left brain preference
b) _____ right brain preference

(23.) Hemispheric Preference element

a) _____ left brain preference
b) _____ right brain preference

(24.) Hemispheric preference element

a) _____ left brain preference
b) _____ right brain preference

(Average #25-27 for a concluding response)

(25.) Impulsive/reflective element

a) _____ impulsive preference
b) _____ reflective preference

(26.) Impulsive/reflective element

a) _____ reflective preference
b) _____ impulsive preference

(27.) Impulsive/reflective element

a) _____ reflective preference
b) _____ impulsive preference

(Transpose these answers into the "Preference Instrument" column of Sam's Checklist on the next two pages. Then go on to assess Sam's Perceptual Modality Strength test on the following page.)

LEARNING STYLE CHECKLIST

Name: Sam Student **Date:** 00/00/00

Comments based on (a) the preference instrument, (b) modality strength test, and (c) strength observations conducted for this individual student.

	Preference Instrument	Strength Observations	Modality Strength Test
I. Environmental Stimuli			
a. sound (1)			
b. light (2)			
c. temperature (3)			
d. design - interior design (4)			
- type (5)			
- arrangement (6)			
II. Emotional Stimuli			
a. motivation (7)			
b. persistence (8)			
c. responsibility (9)			
d. structure (10)			
III. Sociological Stimuli (11)			
a. oneself			
b. a peer (pairs)			
c. two peers			
d. a group of peers			
e. an adult (instructor or practitioner)			
IV. Physical Stimuli			
a. perceptual (12)(13)(14)			
b. intake (15)			
c. time (16)			
d. mobility - task work (17)			
- work area (18)			

	Preference Instrument	Strength Observations	Modality Strength Test
V. Psychological Stimuli			
a. Analytic/Global (19)(20)(21)	_____	_____	
b. Hemispheric preference or dominance (22)(23)(24)	_____	_____	
c. Impulsive/reflective (25)(26)(27)	_____	_____	

PERCEPTUAL MODALITY STRENGTH TEST

ANSWER SHEET

Name: Sam Student **Date:** 00/00/00

I. Visual Strength*

1. toothpaste
2. soap
3.
4. pencil
5.
6. hairpin
7.
8. paper
9. typewriter
10. eraser

II. Auditory Strength*

1. clip
2. nail
3.
4. hook
5.
6.
7.
8.
9. ball
10. chalk

III. Tactile/Kinesthetic Strength*

1. lipstick
2. pen
3. string
4. candy
5.
6.
7. brush
8. glass
9. book
10. candle

Go back to the previous page and record your answer; then proceed to the Self-Check Answer Key to see if your answers are correct!

* Please note that these column headings are placed here for your use only. On the actual answer sheet, the students should not be aware that they are being tested for learning style strengths, because they may perform in their perceptual preference instead.

SELF-CHECK ANSWER KEY

LEARNING STYLE CHECKLIST

Name: Sam Student **Date:** 00/00/00

Comments based on (a) the preference instrument, (b) modality strength test, and (c) strength observations conducted for this individual student.

	Preference Instrument	Strength Observations	Modality Strength Test
I. Environmental Stimuli			
a. sound	silence		
b. light	moderate		
c. temperature	warm		
d. design - interior design	subdued colors		
- type	formal		
- arrangement	no preference		
II. Emotional Stimuli			
a. motivation	self		
b. persistence	self		
c. responsibility	self		
d. structure	flexible		
III. Sociological Stimuli			
a. oneself	X		
b. a peer (pairs)			
c. two peers			
d. a group of peers			
e. an adult (instructor or practitioner)			
IV. Physical Stimuli			
a. perceptual	(t/k, t/k, t/k)=t/k		tactile/ kines-thetic
b. intake	drink		
c. time	early morning		
d. mobility - task work	single task		
- work area	single work area		

	Preference Instrument	Strength Observations	Modality Strength Test
V. Psychological Stimuli			
a. Analytic/Global	(an, an, an)=analytic		
b. Hemispheric preference or dominance	(Rt, Rt, Lt)=right brain		
c. Impulsive/reflective	(imp, imp, imp)=impulsive		

If you were able to assess this sample student's learning style correctly, you are doing very well! If you made any mistakes in assessing the learning style, please review this Learning Activity again.

If you feel competent in assessing learning style through the use of an instrument or test, please move on to Learning Activity #5.

Suggested Activity: Take both of these tests and assess your own learning style, if you haven't done so already. See if you agree with the results!

LEARNING ACTIVITY #5

ASSESSING LEARNING STYLE THROUGH OBSERVATION

Enabling Objective 5: Given a case study describing the observations made of a student's learning style, assess the student's learning style using the Learning Style Checklist as a guide.

The assessment of learning style preference is easier than the assessment of learning style strengths, because students can simply state their preferences for each element. If students are asked to state their strengths, the response would be subject to bias. The students would be tempted to state their preference rather than their strength, so you must use another type of assessment to measure learning style strengths. An observation type of assessment conducted by the instructor is one that is suggested by Dr. Hunt. (Dunn, 1981) In order to conduct this assessment you, as the instructor, wou;d systematically manipulate or change the elements within each learning stimulus and note the reactions displayed by the students in response to the induced change.

An example of this type of assessment can be easily conducted for the sociological strategies: You may have a student who, for example, prefers learning tasks with a group of peers, but you note that this student is not learning the tasks as well as he/she should. Therefore, you decide to conduct an observation assessment. You place the student in a variety of sociological strategies and observe his/her performance on the specified task (such as bed making or patient bathing) very closely. Suppose you observe that the strategy under which the student actually performs best is in pairs. You can then gather that the student's learning strength for the sociological stimulus is the "pairs" strategy. When given a new task to perform, this student should be put to work with one other peer, in order to learn it best.

The psychological stimuli strengths may be more difficult to assess when using the instructor-observation technique, because it is difficult to observe how a student is thinking. For this stimulus, you should teach the task in two different ways and carefully observe both the process the student uses for learning the task and the end result of the task. An example for the psychological stimulus can be cited for the analytic/global element. For instance, if you have a student who is not learning the new tasks you explain very easily, you should observe that student in order to assess his/her psycho-ogical analytic/global strength. You decide to do this by giving the student an explanation of a new task (such as taking an anterio-posterior chest examination) by giving him/her the step-by-step details (the procedure) for performing the task before showing him/her the end result (the radiograph). For a comparble task (such as a lateral chest examination) you show the student the end result (the radiograph) before giving him/her the step-by-step details (the procedure) for performing the task. Suppose the student responds more favorably to being given the step-by-step details first. You can, therefore, infer that your student learns best analytically and should be taught new tasks in an analytical fashion.

This process of instructor-observation is done by using trial and error to identify students' learning style strengths. If you have any difficulty in deciding which elements or strategies need to be tried or tested, you can use the Learning Style Checklist and the Learning Style Preference Instrument as helpful guides for the identification of those elements or strategies.

After you observe a certain learning style strength, be sure to record the information on the Learning Style Checklist, so it can be compared to the preferences cited by that individual student on the Learning Style Preference Instrument. If the student's preference and strength for one of the elements or strategies are not the same, you have a choice as to which element or strategy to use. If one does not seem to work, the other can be used. If the student's preference and strength are identical, that element or strategy is most probably the way in which the student will both learn best and enjoy learning.

Go to the Self-Check to test your observation skill!

SELF-CHECK FOR LEARNING ACTIVITY #5

For the following case study, assess the student's specific learning style. Evaluate the student's behavior in the various situations as you would if you were observing the student.

CASE STUDY

Ed Jones is a student of yours who never seems to be motivated toward the work that he is assigned to do. Since he doesn't motivate himself, you decide to find out who can motivate him. First, you talk to Ed to try to understand the reason for his lack of motivation. Unfortunately, he gives you no answers, so you try to get him motivated by frequently reminding him that he must get to work or you will give him an unsatisfactory clinical evaluation grade. In response to this, he continues to be unmotivated to do any of his work. Next, you discuss his problem with his parents and ask them to encourage Ed to do his assigned work at the clinic. They later have a discussion with Ed and express to him their concern about his lack of motivation. But Ed continues to show a lack of motivation. Lastly, you decide to discuss Ed's problem with his close friend and fellow classmate, Harry. He agrees to have a talk with Ed, urging him to take his work more seriously and "get on the ball." After the discussion with Harry, Ed begins to work on his assigned tasks on time, and in a more energetic manner.

1) State: a) the learning stimulus, and b) the corresponding element of concern for this student.

2) List the different strategies which were manipulated or changed in order to test Ed's learning style strength.

3) Which strategy seemed to work?

4) What brief information should you record on Ed Jones's Learning Style Checklist under the strength observations column?

5) If you are to give Ed an extremely difficult task to perform, how might you assign the task to ensure that he is motivated to do it, given the information you gathered from your observations?

SELF-CHECK ACTIVITY

ANSWER KEY

1. a) Emotional Stimulus
   b) Motivation Element

2. a) Instructor-motivation
   b) Parent-motivation
   c) Close friend-motivation

3. Close friend-motivation

4. Motivated best by Harry. (Make sure you name the individual on the checklist.)

5. The task can be assigned to both Ed and Harry. If it is a task which must be eventually done "solo," you must make sure that Ed is assigned the task on his own the next time he is to perform the task.

If you received four or more correct answers, you did very well and are ready to take the Post-Test for this module.

If your score was less than four correct, please review Learning Activity #5.

This concludes the Learning Activities of the module. If you feel confident in your ability to assess students' learning styles, proceed to the Post-Test.

POST-TEST

Directions: Complete this test after successful completion of the Learning Activities of this module. You may use the Learning Style Preference Instrument Answer Key to assess the sample instrument included in Part II of this test; however, you may not use any other part of the module to answer questions. After completing the Post-Test, utilize the Answer Key to score it.

PART I

Multiple Choice: Circle the letter of the best response.

1. The way in which students learn best is their . . .

   a) learning style preference
   b) learning style strength
   c) learning style habit
   d) teaching style preference

2. A student's learning style . . .

   a) should always be matched with the instructor's teaching style
   b) can be changed
   c) does not change with age
   d) is the same as all the other students' learning styles in the class

3. Which of the following learning style theorists uses a self-assessment instrument to determine students' learning styles?

   a) Hunt
   b) Dunns
   c) Gregory
   d) Witkins

Matching: Match the stimuli on the right with the elements on the left by putting the corresponding letter of the element on the line next to the stimulus. Only one element will match per stimulus.

4.	_____ Environmental	a.	a peer
5.	_____ Emotional	b.	temperature
6.	_____ Sociological	c.	hemispheric preference
7.	_____ Physical	d.	responsibility
8.	_____ Psychological	e.	mobility

Short Answer: Give a brief response to each of the questions #9 and #10.

9. If you have a student who has a high tactile/kinesthetic modality strength and preference, how would you be most successful at teaching this student a new task?

10. If you have a student who is a global learner, in what order would you present the: a) whole concept, and b) specific details of a new task?

a)

b)

Part II of this Post-Test is an actual assessment exercise of a hypothetical student. You will use the following Learning Style Checklist to assess the learning style of Tammy Smith. Record all of your comments on the Checklist according to (1) the completed Learning Style Preference Instrument, (2) Perceptual Modality Strength Test, and (3) the Case Study at the end of this test. (A reminder: You may use the Learning Style Preference Instrument Answer Key to assess the Learning Style Preference Instrument, but you may not use any other part of the module.)

After completing the Post-Test, check your answers with the Answer Key at the end of the module!

LEARNING STYLE PREFERENCE INSTRUMENT

Name: Tammy Smith **Date:** 00/00/00

Directions: Complete the following sentences by placing the check next to the one phrase which best describes your learning style preference.

I.

1. When I want to concentrate on a difficult task, I will work on the task . . .

   a) _____ with music playing
   b) _____ with complete silence
   c) __X__ with some other sort of sound in the background. (specify: no preference)

2. When I perform a task, I like the room to be . . .

   a) _____ very brightly lit
   b) _____ moderately lit
   c) __X__ dimly lit
   d) _____ I have no preference to light

3. When I am working, I like the temperature of the room to be . . .

   a) __X__ fairly cool, or I will feel too drowsy to work
   b) _____ fairly warm, or I will feel too cold to work
   c) _____ moderately warm, to make me feel comfortable working
   d) _____ temperature doesn't affect me unless it is extreme

4. When I am working in a room, I like the room to be . . .

   a) _____ painted in bright colors
   b) _____ painted in subdued colors
   c) _____ contain inspirational pictures and murals
   d) __X__ interior design does not matter to me

5. When I am doing a written assignment I must be seated . . .

   a) _____ at a formal desk or table
   b) __X__ in a casual chair or couch with a clip board
   c) _____ I have no preference

6. When I am working in a room . . .

a) _____ all supplies and equipment should be put in specific places
b) __X__ it doesn't matter to me where things are placed

II.

7. I like to be motivated most by . . .

a) _____ myself
b) _____ my instructor
c) __X__ significant other (close friends or relatives) (specify: _____)

8. After I start tasks, I . . .

a) _____ like to finish the tasks right away
b) _____ like an extra "push" to finish the task
c) __X__ don't like to finish tasks I start

9. I . . .

a) _____ like to take on the responsibility to follow through with tasks on my own
b) __X__ like to be reminded what tasks should be done
c) _____ don't like to take on the responsibility to follow through with tasks

10. I like to . . .

a) __X__ be told exactly how tasks are expected to be done
b) _____ be given choices of how I could do the tasks that are expected of me

III.

11. When I am working on a task, most of the time I like to work . . .

a) _____ on my own
b) __X__ with one peer
c) _____ with two peers
d) _____ with a group of peers
e) _____ with my instructor

IV.

12. I would rather learn by . . .

a) _____ reading how something is done
b) __X__ being told how something is done
c) _____ actually doing something

13. At school, I like to learn by . . .

a) __X__ working on projects
b) _____ reading the material
c) _____ listening to the material being presented

14. I like to remember things by . . .

a) __X__ repeating it verbally
b) _____ reading it silently
c) _____ writing it down

15. When working, I feel the need to . . .

a) _____ eat
b) _____ drink
c) _____ chew gum
d) __X__ I don't feel the need to do any of the above when I work

16. I prefer to work . . .

a) _____ early in the morning
b) _____ late in the morning
c) _____ in the afternoon
d) _____ at night
e) __X__ late at night
f) _____ I have no time preference

17. I like to work on . . .

a) _____ one task at a time
b) __X__ a variety of tasks at a time

18. I like to work in . . .

a) _____ one work area per day
b) __X__ several work areas per day

V.

19. I like to learn a new task by . . .

a) _____ learning the step-by-step process before studying the end result of the task
b) __X__ studying the end result of the task before learning the step-by-step process

20. I like to learn new materials by . . .

a) __X__ learning the whole concept of the material before the details
b) _____ learning the details of the material before the whole concept

21. I like to learn things . . .

a) _____ one at a time
b) __X__ all at once

22. I like to . . .

a) _____ separate things or take things apart
b) __X__ integrate things or put things together

23. When learning something new, I like to conceptualize it in . . .

a) _____ words
b) __X__ images

24. When I learn a new task, I like to learn . . .

a) _____ how I can use it
b) __X__ why it is used

25. When working through a problem, I like to . . .

a) __X__ test the possibilities by trial and error until I find the one I feel is best
b) _____ question the possibilities and decide on the one I feel is best before I try it out

26. When working, I like to . . .

a) _____ think everything through before acting
b) __X__ act by my intuitions

27. When working in a social situation, I like to be . . .

a) ___X___ reserved
b) _____ outgoing

(A reminder: You may use the Answer Key from the module. Then, transpose your results onto the Checklist provided on the following page.)

LEARNING STYLE CHECKLIST

Name: Tammy Smith **Date:** 00/00/00

Comments based on (a) the preference instrument, (b) modality strength test, and (c) strength observations conducted for this individual student.

	Preference Instrument	Strength Observations	Modality Strength Test
I. Environmental Stimuli			
a. sound (1)			
b. light (2)			
c. temperature (3)			
d. design - interior design (4)			
- type (5)			
- arrangement (6)			
II. Emotional Stimuli			
a. motivation (7)			
b. persistence (8)			
c. responsibility (9)			
d. structure (10)			
III. Sociological Stimuli (11)			
a. oneself			
b. a peer (pairs)			
c. two peers			
d. a group of peers			
e. an adult (instructor or practitioner)			
IV. Physical Stimuli			
a. perceptual (12)(13)(14)			
b. intake (15)			
c. time (16)			
d. mobility - task work (17)			
- work area (18)			

	Preference Instrument	Strength Observations	Modality Strength Test
V. Psychological Stimuli			
a. Analytic/Global (19)(20)(21)	_____	_____	
b. Hemispheric preference or dominance (22)(23)(24)	_____	_____	
c. Impulsive/reflective (25)(26)(27)	_____	_____	

POST-TEST

PERCEPTUAL MODALITY STRENGTH TEST

Name: Tammy Smith **Date:** 00/00/00

I. Visual Strength

1. toothpaste
2. soap
3. tissue
4. comb
5. pencil
6.
7.
8. paper
9. typewriter
10. eraser

II. Auditory Strength

1. clip
2. nail
3. razor
4.
5.
6.
7.
8.
9.
10. chalk

III. Tactile/Kinesthetic Strength

1. lipstick
2. pen
3.
4.
5. hammer
6.
7.
8. glass
9. book
10. candle

(Record your answers on the Checklist.)

POST-TEST

CASE STUDY

Tammy Smith is a student of yours who is not able to "grasp" information you explain to her well enough to apply it to the clinical setting. When you give her a task to do, she cannot perform it. You decide to assess her learning modalities to see how she perceives material best. First, you explain the material, and she doesn't seem to remember it well enough to perform it. Next, you make her perform the task as you guide her through the process, but she still is not able to perform the task. Lastly, you decide to give her a written dialogue of the procedure to take home and study. The next day she is able to perform the task without any coaching!

(Record your answer on the Checklist.)

When you have completed the Post-Test, proceed to the Answer Key.

POST-TEST ANSWER KEY

(PART I)

Multiple Choice

1. b
2. b
3. b

Matching

4. b
5. d
6. a
7. e
8. c
9. By letting the student actually perform the task.
10. You would present them with the whole concept or the end result of the task before presenting the step-by-step details of the task.

POST-TEST ANSWER KEY (PART II)

LEARNING STYLE CHECKLIST

Name: Tammy Smith **Date:** 00/00/00

Comments based on (a) the preference instrument, (b) modality strength test, and (c) strength observations conducted for this individual student.

	Preference Instrument	Strength Observations	Modality Strength Test
I. Environmental Stimuli			
a. sound	no preference		
b. light	dim light		
c. temperature	cold		
d. design - interior design	no preference		
- type	informal		
- arrangement	flexible		
II. Emotional Stimuli			
a. motivation	(close friends) significant others		
b. persistence	prefers not to be persistent		
c. responsibility	little		
d. structure	rigid		
III. Sociological Stimuli			
a. oneself			
b. a peer (pairs)	X		
c. two peers			
d. a group of peers			
e. an adult (instructor or practitioner)			
IV. Physical Stimuli			
a. perceptual	(aud, t/k, aud)=auditory	visual	visual
b. intake	no need		
c. time	late night		
d. mobility - task work	variety		
- work area	variety		

	Preference Instrument	Strength Observations	Modality Strength Test
V. Psychological Stimuli			
a. Analytic/Global	(gl, gl, gl)=global		
b. Hemispheric preference or dominance	(Rt, Rt, Rt)=right brain		
c. Impulsive/reflective	(imp, imp, refl)=imp.		

If you missed more than 3 answers, you should review the Learning Activities. If you missed 3 or less, you are ready to start assessing your students' learning styles.

Suggested Activities

1) Use the instruments presented in this module to practice assessing your students' learning styles.

2) Using the instrument list at the end of the References of this module, send for the ones you desire to utilize. Use these instruments to assess your students' learning styles.

3) After assessing your students' learning styles, keep a Learning Style Checklist in each student's permanent file.

4) Use this information when planning methods for instruction, in order to match learning and teaching styles or to encourage learning style flexibility where and when it is appropriate.

SUMMARY OF THE MODULE

Before attempting to instruct your students, you should first find out how each of your students learn. Through the use of various commercially available learning style assessment instruments and observation techniques (refer to the list on pp. 89-91 of this module) you can determine the learning style of each one of your students. Assess your students' learning style preferences and learning style strengths. Once you have assessed your students' learning styles, you can attempt to more effectively instruct them. You may either match your teaching styles with your students' learning styles, or you may encourage them to be more flexible learners by giving them tasks which are not within their natural learning style. A unique combination of these two approaches can assist your students to becoming more well-rounded learners.

The instruments and techniques you have used within this module are to be used as samples for practice. Validated standardized instruments and observational techniques are available for your use (refer to pp. 89-91 of this module for a list). Consult your educational program director or resource person to help you determine the most appropriate learning style assessment devices for your program.

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LEARNING STYLE ASSESSMENT INSTRUMENTS

1) Cognitive Profiles, by Charles A. Letter

Source: Cognitive Profiles: Basic Determinant of Academic Achievement
Burlington, VT: Center for Cognitive Studies, 1980.

Note:
- measured by standardized test scores
- seven cognitive style tests

2) Group Embedded Figures Test, by Herman A. Witkin

Source: Consulting Psychologists Press Inc.
577 College Ave.
Palo Alto, CA 94306

Note:
- assessment of analytical vs. global learning style

3) Learning Method Test, by Robert Mills, 1955

Source: The Mills School
1512 E. Broward Blvd.
Fort Lauderdale, FL 33312

Note:
- task assessment of learning style modalities
- individually administered

4) Learning Strategies Questionnaire, by Norman Kagan & David R. Krathwohl

Source: Studies in Human Interaction
Washington, DC: NEW/USOE Bureau of Research, 1967.

Note:
- a college-level self-report questionnaire
- assesses analytic vs. global style

5) Learning Style Inventory, by Albert Canfield & Judith Canfield

Source: Humanics Media
Liberty Drawer 7970
Ann Arbor, MI 48107

Note:
- 30-question self-report
- for junior high and up

Instruments (continued)

6) Learning Style Inventory, by Rita Dunn, Kenneth Dunn & Gary E. Price

Source: Price Systems
Box 3271
Lawrence, KS 66044

Note: - self-report questionnaire
- computer scored

7) Learning Styles Inventory, by Joseph Renzulli & Linda Smith

Source: Creative Learning Press
Mansfield Center
Mansfield, CT 06250

Note: - 65-item instrument
- measures attitude toward nine modes of instruction
- computer scored

8) Matching Familiar Figures Test, by Jerome Kagan

Source: Krumboltz, J. (1965). Impulsive and reflective children, Learning and the Educational Process. Chicago: Rand McNally.

Note: - tests the speed and adequacy of information processing and concept formation of students when shown 12 different pictures.

9) Student Learning Styles Questionnaire by Anthony F. Grasha & Sheryl W. Riechmann

Source: Institute for Research and Training in Higher Education
University of Cincinnati
Cincinnati, OH 45221

Note: - 90-item test on attitudes toward courses taken
- hand-scored

10) Student Motivation Information Form, by Raymond J. Wlodkowski

Source: University of Wisconsin
Milwaukee, WI 53201

(Available from NEA - National Education Association)

Note: - 35-item test
- tests motivation

Instruments (continued)

11) Swassing-Barbe Modality Index, by Walter Barbe & Raymond Swassing

Source: Zaner-Bloser Publishing Co.
Columbus, OH 43216

Note:
- tests modality strengths
- involves the ordering of geometric shapes

12) The 4MAT System, by Bernice McCarthy

Source: EXCEL Inc.
Arlington Heights, IL 60004

Note:
- assesses psychological elements of learning style through the use of teacher-observations

13) Transaction Ability Inventory, by Anthony F. Gregoric

Source: Department of Secondary Education
University of Connecticut
Box U-33
Storrs, CT 06268

Note:
- a self-report assessment of psychological elements of learning style